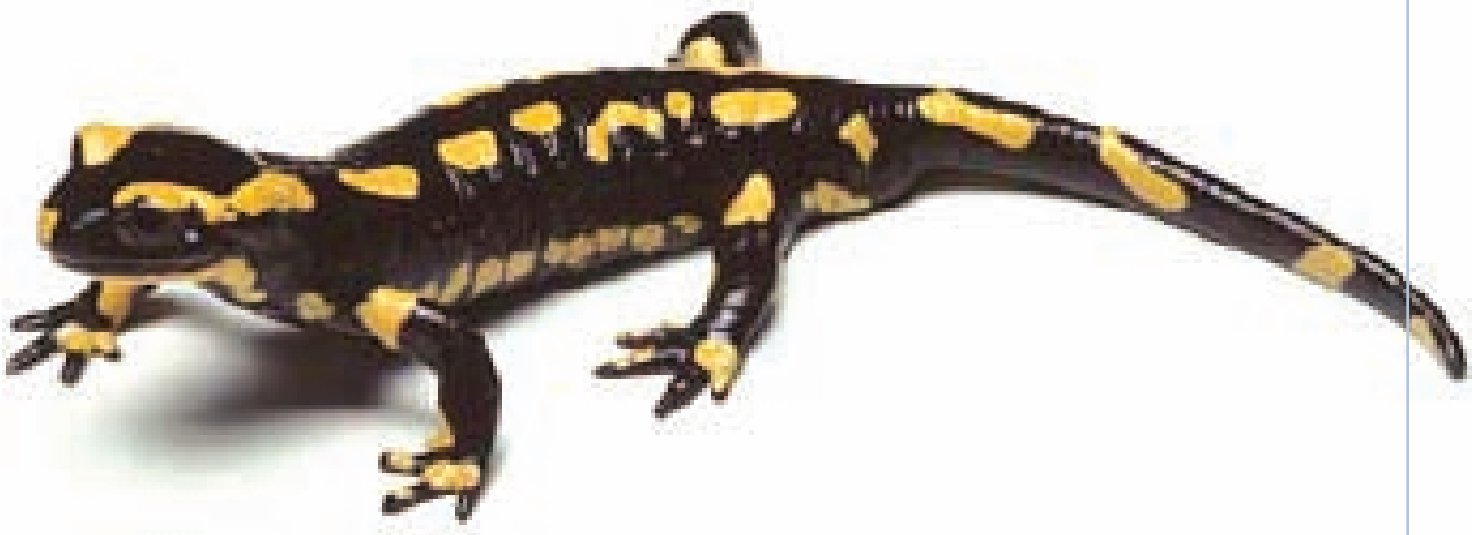
Environmental Protection

1996-2006

The Path to Sustainability



MONTGOMERY COUNTY, MARYLAND

Environmental Protection 1996-2006

The Path to Sustainability

Department of Environmental Protection
Montgomery County, Maryland

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It is my firm belief that there are few missions more important to government than the protection of our natural resources. A clean and sustainable environment is the legacy that we leave for future generations, and I'm proud of the progress Montgomery County has made in safeguarding our resources for our children and their children.

Douglas M. Duncan
Montgomery County Executive

From the DEP Director

Ten years ago the Department of Environmental Protection (DEP) underwent a dramatic metamorphosis, evolving from a large organization with a host of varied missions, to a considerably smaller department focused solely on protecting and restoring the natural resources of Montgomery County. Today, we are well along the path to achieving our goal of developing a sustainable approach to environmental protection which will ensure that future generations have access to clean air and water, a healthy stream system, and a growing tree canopy. This report is designed to provide a summary of the efforts undertaken by DEP over the last ten years in support of our vision and to meet our responsibility to move toward a sustainable future.

Key to developing strategies to improve our environment is to gain a better understanding of the current condition of our natural resources. We accomplished this by creating comprehensive resource monitoring and assessment programs, including a nationally-recognized stream monitoring program and a countywide baseline groundwater quality assessment. At present we are in the process of developing a comprehensive assessment of tree canopy coverage and, with assistance from the State of Maryland, we are tracking fundamental trends in regional air quality. These tools define the science around which we structure our priorities for projects to improve the condition of our natural resources.

In defining our priorities, it is important to understand that all aspects of environmental resource protection are interrelated. As one example, consider the value of trees in the overall environment. Trees help improve air quality by serving as a sink for carbon dioxide and a living filter for particulate matter. They improve energy efficiency by providing shade in urban heat islands, while also cooling stormwater runoff before it reaches our streams. Trees further assist in stormwater control by buffering the effect of rain runoff in highly urbanized areas, and also provide habitat for a variety of wildlife. There are many similar interrelationships that we must assess in our efforts to improve the environment. On the path toward sustainability, we find that there is no single giant leap that will gain our destination, but rather a series of well-planned steps which continually move us to our goal.

Attaining our sustainability goals also depends on building and nurturing a solid foundation with our community and business partners. The implementation of our strategies requires the attention of all, as many of the necessary changes will require shifts in our personal habits. Public education, communication, and long-term partnerships have become essential investments. With the assistance of our diverse and committed community, we have formulated our strategies and have undertaken this vital journey together.

I am proud to present DEP's accomplishments over the last ten years. While there will always be more to achieve, and unexpected challenges to face and address, we are making progress toward our core goals. As I look ahead, I am encouraged by the knowledge, dedication, and perseverance of the many people within DEP who turn strategies into a living reality. Their efforts assure all of us that Montgomery County has a sustainable future.

James A. Caldwell
Director, Department of Environmental Protection

Executive Summary

In recent years, "sustainability" has become a fundamental term in the public debate concerning land and resource use, economic growth, and the future health of our society. But while the word is new, the concept has been eloquently described in the writings of conservationists such as Theodore Roosevelt, Gifford Pinchot, and Aldo Leopold. These thoughts, these words, echo down to the present day as an impassioned call for a sustainable future. But how and when do we move beyond the words themselves?

Strategic Plans

In Montgomery County, and within the Department of Environmental Protection (DEP), we have built our mission of a sustainable future around key strategic plans. These strategies focus on protecting and enhancing the county's natural resources, and were developed with the guidance of our community: our residents, business leaders, policymakers, agency representatives, and DEP program managers. Through a process of discussion and public meetings, each strategy was developed, along with specific goals and objectives.

As strategies were developed, some over many years, a critical issue came to light as central to our integrated approach to sustainability. Each task force or group responsible for drafting strategic plans discovered that they were looking beyond boundaries and beyond media. For example, our Energy Policy accurately noted that "the manner in which we consume energy has a direct effect on the quality of our environment. Overdependence on fossil fuels, and our reliance on inefficient energy consumption — from our vehicles, homes, and appliances — directly impacts our air and water quality." That fact was similarly recognized by the group working on the Air Quality Protection Strategy as they examined the sources and precursors of ground-level ozone, in addition to other environmental challenges. It was noted that paved (or impervious) urban spaces create heat islands, which further increases electricity demands for air conditioning, subsequently exacerbating air pollution, while also increasing stormwater and pollutant runoff, which further led to the degradation of streams and water quality — itself a key concern for the Countywide Watershed Protection Strategy. Not surprisingly, the Forest Preservation Strategy strongly advocates expanding the canopy of the urban forest to buffer heat islands, while also providing habitat and trapping or filtering a host of air pollutants. Clearly, the goals of this group extend into areas of concern for air and water quality, energy use, and, overall, the myriad of environmental challenges facing our growing community. Each goal represented in each strategy becomes a strand in this larger web of interrelationships.

Public release of Environmental Assessment 2000, Earth Day, April 2000.

A Community Working Together

Another cardinal observation of this process was that a sustainable future could not be achieved by any single agency or group of agencies. Much as each strategic plan depended on other plans, so, too, each goal depended on a community-wide commitment to cooperation and shared responsibilities. A sustainable society cannot attain environmental health by sacrificing economic health. A sustainable future will not result from a series of either-or decisions. Eliminating businesses with the potential to pollute our air or water is neither practical nor sustainable. The solution must evolve from an ongoing discussion among all the members of the community, and through dynamic partnerships and educational programs.

The Future of Sustainability

The strategic plans which follow detail significant accomplishments and state important future goals. Note that each program is deeply rooted in a combination of partnerships, public meetings, outreach and communication initiatives, and grassroots or volunteer efforts. These partnerships are vital to our community.

This proactive approach was the basis for DEP's new orientation ten years ago, and has led to collaborative efforts between the department, our fellow agencies, and our businesses, residents, and many others. In 1996, we realized that the path to sustainability would require tools which were until then seldom seen in government programs, from television production and website publishing, to marketing, advertising, and, above all, innovative partnerships with non-governmental organizations and citizen groups, both in and around the county itself.

Leading by Example

The final word on sustainability is leadership. Beyond working with other groups and agencies, we realized that a sustainable future required leadership. Someone must start our community on the path to sustainability. To that end, Montgomery County instituted an Environmental Policy, the goals of which are to ensure that every aspect of government operation, from transportation to construction, planning to management, is grounded in an environmental ethic. Each individual in every department must receive training in pollution prevention, for example, and each department is responsible for making sustainable choices with respect to green product purchasing, energy conservation, waste reduction and prevention. Our belief, as a County, is that we can only ask others to join us on the path if we first lead the way.

Strategies for a Sustainable Environment

Air Quality Protection Strategy

The primary focus of the Montgomery County Air Quality Protection Strategy is to identify strategies that will lead to healthy air for residents and businesses, and to provide a framework for other local and state jurisdictions to follow. It is especially important in the ambient air quality arena to reach out and become good stewards of our air shed, as our actions affect the air quality of those downwind of us, while the lack of proper actions and planning can have a negative on the quality of air that we breathe locally. In our work to attain a sustainable community, it was deemed necessary to adopt an integrated approach that considered land, air, and water impacts rather than shifting some of those problem areas to other programs and resources. In developing Montgomery County's Air Quality Protection Strategy, the major air quality issues and pollutants of key concern to our area were evaluated, resulting in eight strategies, which will positively impact our air quality, both locally and globally.

Goals Achieved

An examination of air pollution problems and sources indicated on-road transportation was a significant source of both ozone and particulate matter in the region. Therefore, the Air Quality Strategy has specifically targeted reductions from this source, as noted in Strategy Four, especially with the adoption of a "technology neutral" plan. As there is no single transportation fuel or technology which will result in zero emissions while conserving natural resources, the goal is to utilize available technologies that will provide the least amount of emissions until that sustainable transportation source is discovered. While both compressed natural gas (CNG) and diesel were already a part of the County fleet, Montgomery County has also purchased both hybrid sedans and buses.

Montgomery County has been in the forefront of supporting multi-pollutant legislation to control the emissions of pollutants from our coal-fired power plants, including executive support for the Healthy Air Act, requiring power plants to achieve reductions in nitrogen oxides, sulfur dioxide, mercury, and carbon dioxide. Passage of this legislation will achieve significant reductions in these pollutants, and will pave the way for this region to reach attainment with the National Ambient Air Quality Standards. Passage of this legislation will also lead to improvements in this area's water resources, inasmuch as 30 percent of the nitrogen in the Chesapeake Bay comes from air deposition, and much of the mercury contamination in fish from our waters is from coal-fired power plants.

While power generation and industry is responsible for a large amount of air pollutants emitted, the air quality problems in our county are also caused by the actions of residents: driving, mowing lawns, and painting, are among other routine activities contributing to air pollution. One of the actions accomplished in Strategy Eight was an education program about lawn and garden equipment. DEP held several events where residents were allowed to bring in old gas cans for new, lower emitting gas cans, eliminating many pounds of volatile organic compounds, an ozone precursor, into our air shed. Residents were also provided with rebates for turning in old gasoline-powered equipment.

Future Priorities

There is currently a more stringent eight-hour ozone standard that we must strive to meet by the summer of 2009, in addition to a new fine particulate matter standard. DEP will expand its efforts in the reduction of greenhouse gases, cited in Strategy Six, into the regional forefront. Taking work completed as part of the County's commitment to the Cities for Climate Protection, the County will move toward the development of a regional greenhouse gas reduction plan. Another priority will be to add more hybrid vehicles to the County fleet, evaluate new transportation technologies, and support enhanced mass transit. DEP will also develop an outreach program for multi-tenant dwellings, the core element of which will include planting trees to shade air conditioning units, in addition to other resource-savings measures such as best painting practices, integrated pest management, and purchase and use of Energy Star appliances and products.

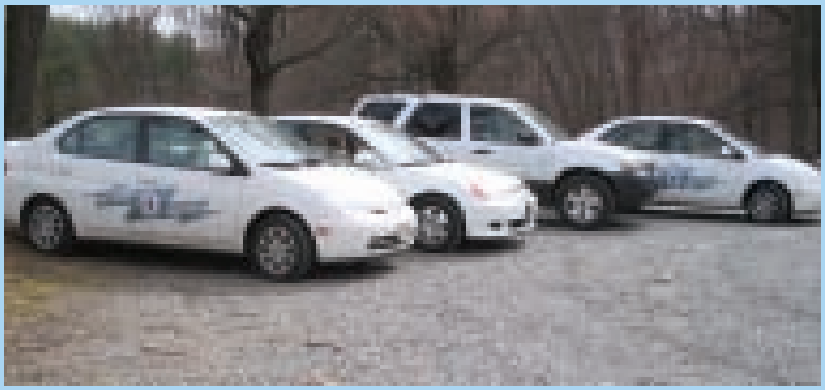
OZONE ACTION DAYS

Ground-level ozone is created when intense sunlight reacts with nitrogen oxides (NOx) and volatile organic compounds (VOCs). High concentrations of ozone occur during hot, sunny days, when air flow is limited or stagnant. The main ozone-causing pollutants come from many sources, including vehicles, lawn mowers, boats, and emissions from power plants. This region experiences many summer days where the level of ozone in the air reaches unhealthy levels. During the summer, scientists forecast air quality to alert us of impending bad air quality, or "Code Red," air quality days. In response, Montgomery County launched its "Ozone Action Day" plan to change public behavior whenever a Code Red day is anticipated. By changing public behavior significantly, the level of ozone precursor emissions will be reduced, thus avoiding a bad air quality day. The media and news agencies have partnered in promoting simple everyday actions that the public can take to reduce ozone precursor emissions on Code Red days, from using public transit to not mowing the lawn. In addition, the County has implemented its own set of behavior changes to reduce ozone precursor emissions from agency activities, including curtailing the production of power from its Resource Recovery Facility, if the power grid allows, and allows residents to board the Ride On buses at no charge. The County also curtails roadway lane painting, lawn mowing, asphalt paving, and encourages County employees to refuel County vehicles after 7 p.m. Recently, the focus of Ozone Action Days has changed to allow the inclusion of particulate pollution, another pollutant of concern. As many of the sources of particulate matter are similar to ozone, the actions undertaken - and avoided - are similar.

THE RADON SURVEY PROJECT

In an effort to educate county residents about radon potential, health considerations, and radon mitigation, DEP developed a radon survey project. Through active participation, residents learned about radon, an invisible, cancer-causing radioactive gas created during the natural decay of uranium in rocks and soils, which can easily escape into fractures and openings in rocks and into the porous spaces between grains of soil, and thereafter in basements and the lower levels of homes. Residents were taught about radioactive decay, geology, health impacts of exposure, and other related considerations. Guidelines on how to use a radon test kit, and radon testing in homes, were provided upon completion of a survey. Specific data about radon was also collected across a broad geographic area. The returned data allowed DEP to perform more precise and up-to-date radon mapping in a variety of communities. The data also provided information regarding the effectiveness of the County's building codes, which have required builders to install passive radon systems in all homes effective November 1990. Over 1,500 test results were collected. An analysis of the data showed that approximately 75 percent of the homes tested in Montgomery County were below the EPA suggested action level of 4pCi/L and, of the homes tested, where residents indicated that their home was built after 1990, 80 percent of those results were below the EPA action limit.

REDUCING MOBILE EMISSIONS



Automobiles, trucks, and buses have been identified as significant sources of both ozone and particulate matter in the region, with their emissions accounting for over 30 percent of the smog precursors emitted countywide. In response, Montgomery County has adopted a "technology neutral" plan to utilize all available technologies which provide the least amount of emissions, while conserving natural resources until a completely sustainable transportation source is discovered. While both compressed natural gas and diesel technologies were already a part of the County fleet, both hybrid sedans and buses have been added, including four hybrid electric vehicles used by DEP (shown above).

Energy Policy

Montgomery County's Energy Policy was developed promote the increased use of renewable resources and the efficient use of non-renewable resources to further the concept of sustainable communities and sustainable development. The Energy Policy employs creative measures to increase energy efficiency, promote alternative fuels, procure clean renewable energy generation, and educate residents as to the importance of efficient energy consumption and the direct connection between energy usage, air quality, and a healthy environment.

MONTGOMERY COUNTY WIND ENERGY PURCHASE

Montgomery County led a wind energy purchase by a regional partnership including two county governments, a public school system, a community college, a bi-county water and sewer authority, a bi-county parks commission, a housing commission, and eleven municipal governments. Beginning in July 2004, five percent of the electricity used by this partnership has come from wind energy. This amount (over 38.4 million kilowatt hours per year) represented the largest wind purchase ever conducted by a local government organization in the United States. The purchase also established a national precedent or the use of renewable energy to meet federal regulatory requirements for air quality attainment standards. This is the first time that a renewable energy purchase has been included in a State Implementation Plan (SIP) for meeting ground-level ozone standards under the Clean Air Act.

Interim Goals Achieved

Montgomery County led a wind energy purchase by a regional partnership which included Prince George's County, Montgomery County Public Schools, Montgomery College, Maryland National Capital Park and Planning Commission, Washington Suburban Sanitary Commission, Housing Opportunities Commission, and eleven municipal governments. Beginning July 1, 2004, five percent, or 38.4 million kilowatt hours, of the electricity purchased by this partnership comes from wind energy.

DEP has also dedicated resources to expanding solar energy usage through sponsorship of the Metro-Washington, D.C. Tour of Solar Homes & Buildings for several years, and promoting funding opportunities from the Maryland Energy Administration for residents wishing to install solar energy systems.

The EnergyWise Office Program provided outreach and education to County employees encouraging the efficient use of energy resources through behavioral changes, such as turning off lights and office equipment when not in use, and purchasing Energy Star products. It was estimated that when fully implemented that this program would generate enough savings in electricity to cover the incremental cost of the County's five percent wind energy purchase. This program has recently been incorporated into the County Environmental Policy. All EnergyWise Office measures have been fully implemented and each County department must report on specific measures they have taken in their mandatory Environmental Action Plans.

As behavioral change is an important component in reducing energy consumption, DEP conducted several outreach and educational campaigns for residents and businesses on a variety of topics, including home and office energy efficiency, renewable energy applications, and energy-conserving landscaping practices. Campaigns include website development, printed materials, advertising, and cable television programming. One of the cable television programs, The GreenMan Show, presented a series of 12 different programs to the County's 205,000 cable households, in addition to providing streaming video access via the Internet.

Future Priorities

1. A key priority for DEP is escalating energy policy initiatives to a regional level. A secure and sustainable energy supply is dependent on maintaining a balance between energy supply and demand, as well as a robust energy infrastructure. Infrastructure reliability can be improved though the increased use of renewable energy sources to displace the use of fossil fuels. The disbursed nature of renewable energy resources provides resistance to supply disruptions resulting from fuel shortages, accidents, or terrorism. The Metropolitan Washington Council of Governments (COG) recently engaged the services of a contractor to develop a Regional Energy Policy, with the participation of COG member jurisdictions. Montgomery County is an active participant in this regional effort as a member of COG's Energy Policy Advisory Committee.

2. The recently introduced Clean Energy Rewards program will provide financial incentives to consumers choosing to buy electricity produced from clean renewable sources. Because the price for conventional electricity generation is less expensive than sources using wind, solar, geo-thermal, and low-impact hydroelectric, the program will provide consumers with rebates on renewable energy purchases.

3. Building design is another key component in sustainable energy planning. The design, construction, operation, maintenance, and removal of buildings takes enormous amounts of energy, water, and materials, and generates large quantities of waste, and air and water pollution, as well as creating stormwater runoff and heat islands. "Green Buildings" employ the practice of creating healthier and more resource-efficient models of construction, renovation, operation, maintenance, and demolition. Elements of green building include energy efficiency and renewable energy, water stewardship, environmentally-preferable building materials and specifications, waste reduction, smart growth, and sustainable development.

Forest and Tree Conservation

During the last ten years, our increasing awareness of the values of trees and forests in our neighborhoods and cities has changed the way we do business. Trees shade our homes and streets; soften the hard edges of buildings and pavement; help clean our air and water; and, for most of us, are essential to the places we choose to live. They are an extraordinarily cost-effective means of providing benefits with far-reaching effects on our environment, and on our sense of well-being and community. They are one of the few truly renewable and therefore sustainable resources, and we must no longer take them for granted.

Trees and forests are now significant elements in Montgomery County's long-term commitment to a healthier environment. As integral parts of DEP's programs to improve air and water quality, they have become incorporated into our monitoring efforts and restoration projects with an eye toward their long-term health and survival.

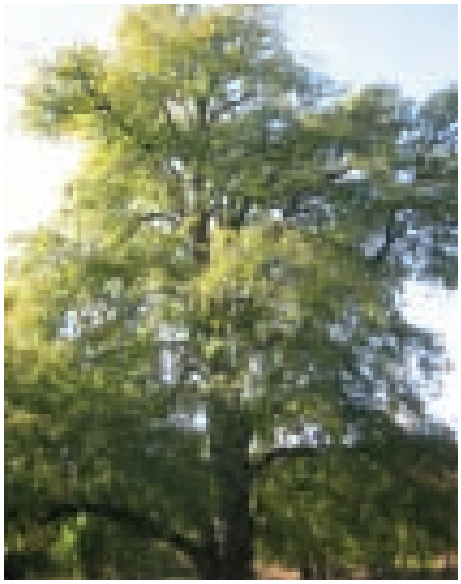
While trees and forests begin to provide benefits immediately, they need many decades to grow sufficiently to provide substantial environmental improvements. Our plans must include providing enough space for trees to grow, enough soil for roots, enough water, and protection from accidents and vandalism. Planning for their care and renewal requires commitment beyond our five-year budgets or replacement schedules for sidewalks. While we work to enhance our neighborhoods with trees and forests, we also work to foster stewardship over our life time and the life times of trees.

Goals Achieved

The Forest Preservation Strategy was developed by a task force that included representatives from citizen and environmental groups, the agricultural community, local and state governments, and utility companies, at the request of the County Executive. This strategy provided an overview of existing conditions, and recommended specific actions to enhance and protect trees and forests to help ensure viability in future decades.

Following several of the recommendations in the Forest Preservation Strategy, DEP successfully developed a comprehensive street tree planting program that aims to plant trees and increase canopy in areas where the benefits are most needed. Additionally, DEP calculated the area of the county covered by tree canopy, using satellite imagery. These calculations were used to estimate the funding necessary for reducing air pollution and stormwater management if trees were not growing in Montgomery County. These savings were estimated at more than $462 million annually.

In less than ten years, newly planted street trees will cool streets and sidewalks, absorb air pollutants, and reduce stormwater runoff.



This ancient basswood is part of the natural heritage we strive to conserve.

Priorities

DEP is developing ways to consistently and regularly estimate the coverage and distribution of tree canopy, as well as its associated dollar value. Images from satellites used in the past will likely be replaced by Geographic Information System (GIS) and Laser Imaging Detection and Ranging (LIDAR) mapping, featuring millions of data points, each representing a variety of surface elevations, including both ground level and the tops of trees. This will help us identify areas that need more trees, and areas where conserving trees should be a high priority. Also, we will be able to measure gains and losses of tree canopy across the county.

DEP is also continuing its role to coordinate efforts for conserving trees and forests. This includes programs like the gypsy moth suppression program, a multi-agency cost-share initiative. Our efforts will continue to raise awareness of the need to protect trees from the damaging effects of gypsy moths, and ensure that funding and other resources are available when needed. Because much of the tree loss in the county occurs on private land, DEP is also developing programs to encourage tree plantings on private property. These efforts will complement the street-tree plantings on public rights-of-way.

Groundwater

Groundwater is vital to public health, the environment, and the economy, as a public water supply, a source of recharge to streams, and a source of water for economic benefits. Approximately 85,000 people in Montgomery County (approximately 10 percent of the

A technician monitors groundwater conditions.

population) rely on groundwater for their drinking water. This population occupies nearly 50 percent of the land area of the county, located in the rural and agricultural zones. In these areas of the county, public water supplies are generally unavailable or impractical, and groundwater is the only feasible source of water supply. In addition, groundwater also feeds streams and rivers, especially during periods of drought or low flow, and it is a resource for agricultural and other economic entities that use groundwater for irrigation, process water, or for heating and cooling.

To ensure that groundwater continues to be available, it is important that we understand the factors that contribute to groundwater shortages and contamination. The County's Groundwater Protection Strategy has been developed and implemented to promote a sustainable groundwater supply, and provided for three initiatives, which include a program of monitoring and data analysis to evaluate current conditions and project future water quality (the Baseline Monitoring Program); the identification of recharge areas that have the greatest influence on the quality and quantity of the county's groundwater; and a program of public education and outreach to raise the awareness of the influences that we have on the quality and quantity of groundwater. We believe that a greater understanding of groundwater will result in citizens adopting behaviors that will protect this vital resource.

Goals Achieved

Over the last ten years, Montgomery County has built programs to ensure the sustainability of the county's groundwater resources. As recently as 1997, there was no countywide strategy for protecting groundwater. The Groundwater Protection Strategy, adopted in 2001, has focused on the development of three significant elements.

1. The first is the conversion of 17,000 well and septic records in the Department of Permitting Services paper files into an electronic database of wells. This involved the review of approximately 35,000 well and septic files, some dating back to the 1930s, and creation of a database that incorporated critical data. In addition, this database has been integrated into DEP's GIS system.

Among the many benefits of access to this data, the County can more easily and accurately respond to Maryland Public Information Act (MPIA) and federal Freedom of Information Act (FOIA) requests, quickly identify potential threats from chemical spills, and contact residents whose drinking water may be at risk. It has also improved the efficiency with which the County interacts with the State in the Water Appropriation and Use Permit process. Furthermore, it has enabled the County to identify sources of potential water supply for critical care facilities, in the event that public water supplies are interrupted for long periods.

2. The second goal has been the establishment of a monitoring program (the Baseline Monitoring Program) to comprehensively assess the county's groundwater conditions. This program is designed to assess any significant changes in water quality and quantity.

While a number of hydrological and geological studies of water and groundwater in the county had been conducted, there had never been a comprehensive, quantitative, study of the county's groundwater resources that would provide an understanding of current conditions and form the basis for developing meaningful groundwater protection programs. DEP has performed the initial sampling that has established the county's groundwater baseline conditions, and found that the overall condition of the county's groundwater is good. DEP has prepared a report that details scientific findings, and makes recommendations for actions to protect groundwater and for future monitoring requirements.

3. The third goal has been the development of education and outreach to inform the public of the actions the department has taken to protect groundwater, and to provide the public with information about what Montgomery County residents can to do to protect groundwater resources. This information has been presented by DEP at citizen meetings and advisory boards, answering questions about groundwater characteristics, contamination and cleanup, and ongoing groundwater protection.

Priorities

Despite the impressive progress made in a very short time, three items remain to be accomplished to assure that Montgomery County's groundwater is a sustainable resource well into the future. This further work relies on using the data available in the Baseline Monitoring Program.

DEP's goal is to use the monitoring data to target recharge areas that have the greatest influence on water quality and quantity. The county's diversity of geology, population, and land use, requires innovative approaches to recharge area protection. These strategies will need to be integrated into area master plans and related land use decisions.

One important approach is the education of residents about the importance of the proper

application of agriculture, lawn, and garden products, both in the rural areas of the county as well as downcounty. Infiltration of these chemicals can greatly affect groundwater quality, and residents need to be aware of the importance of proper application or use of less harmful alternatives.

Secondly, DEP must use the monitoring data to continually evaluate the monitoring program itself, and update it based upon changing conditions found in the data, the environment, or in the needs of the county. For example, it might be found that certain areas need to be more closely monitored to evaluate potential threats to degradation of groundwater quality or quantity, resulting in impacts to drinking water, stream quality, or the Chesapeake Bay.

Finally, DEP will provide guidance in the use of the monitoring data to update information used by other County agencies in developing planning documents related to land use and hazard mitigation. As Montgomery County continues to grow, it will become even more important to manage groundwater to sustain the public with environmental quality and economic development.

WETLANDS AND VERNAL POOLS

Wetland created at Stream Valley Drive, Rock Creek, 2004.

Wetlands provide many benefits by filtering water, attenuating flooding, recharging groundwater, and providing wildlife habitat. Wetlands function by intercepting surface runoff and retaining the water. By supporting a matrix of plants, microbes, insects, fish, amphibians, reptiles, and mammals, these organisms help filter the water by cycling nutrients and capturing pollutants from entering a nearby river or stream. Capturing pollutants, excess nutrients, sediment, and attenuating runoff helps buffer adjacent water bodies and reducing the impacts to wildlife utilizing local rivers and streams. Even during dry seasons wetlands help recharge groundwater levels and supply base flow to local rivers and streams. One type of ephemeral wetland, known as a vernal pool, can be found along rivers and streams throughout the county. Vernal pools are small depressions fed by rainwater, runoff, and groundwater during late winter and early spring. During this time vernal pools provide vital habitat for breeding amphibians such as salamanders, toads, frogs, and many other aquatic species. As late spring approaches, the vernal pools begin to evaporate and remain dry for most of the year.

Recognizing the continuing need for replacing lost wetland habitat, DEP promotes wetland creation as an important objective in its watershed restoration program. DEP is creatively integrating wetlands along floodplain benches and at the end of stormdrain outfalls. The Sycamore Creek constructed wetland project located near Rockville captures runoff from an adjacent stormdrain pipe. During rainfall events, water is diverted through this wetland, and the runoff is treated by the balanced ecosystem, filtering pollutants and utilizing the excess nutrients. This wetland is also home to many species of frogs and salamanders. In the upper Rock Creek, near Laytonsville, DEP created several wetlands and vernal pools near Stream Valley Drive. Many of these wetlands were placed along stream banks where they will flood frequently during storms and reduce erosive stream velocities and filter stormwater. Near White Oak, an erosion gully at the end of a stormdrain outfall was converted into vernal pools to slow down the velocity of storm flows and filter the runoff before it enters this tributary of Northwest Branch.

Detailed information concerning species that use the wetland habitats and stream valleys throughout Montgomery County can be located at herps.askdep.com.

> The Nation behaves well if it treats the natural resources as assets which it must turn over to the next generation increased not impaired in value.
>
> — Theodore Roosevelt, 26th president, 1903

Water and Wastewater Policy

The County's water and wastewater policy and planning efforts are focused primarily through the Ten-Year Comprehensive Water Supply and Sewerage Systems Plan (CWSP). The CWSP is a unique strategic plan that incorporates the policy recommendations of the County Executive and the County Council, and that is adopted by the County in fulfillment of State statutory requirements.

The Plan provides an interface between various County programs and policies (land use planning, water/sewer infrastructure, regional planning and policies, major capital projects, etc.) which help to promote the sustainability of the County's environmental health and public health. The Plan is intended to ensure that existing and future water supply and wastewater disposal needs are satisfied in a logical, cost-effective manner that protects both environmental resources and public health.

Program History

During the past ten years, the CWSP has promoted and guided the replacement of the Washington Suburban Sanitary Commission's two aging interim sewage treatment plants with advanced, state-of-the-art treatment facilities in Germantown and Damascus. These plants provide for effective, advanced nutrient removal from wastewater, a critical part of efforts to protect and restore the environmental quality of local streams and the Chesapeake Bay. The Plan's emphasis on rebuilding these plants on the same sites as the interim plants also avoided the need to construct miles of trunk sewer mains through the Great Seneca Creek watershed.

The Plan has also provided for coordination between the County's land use and sewerage systems planning. Based on this guidance, DEP staff worked closely with the Maryland-National Capital Park and Planning Commission (M-NCPPC) land use and environmental planners to promote development plans that acknowledge human and environmental needs to provide sustainable communities. The use of public water and sewer service has supported the recent emphasis on cluster development, which helps to preserve sensitive natural resources and encourage watershed protection, especially at the transition between suburban corridors and rural wedges. DEP staff also worked with M-NCPPC planners on reducing the overall public sewer envelope in lower-density areas of Potomac through that area's 2002 master plan, reducing the impact of potential sewer main construction through sensitive rural watersheds, and reducing the potential for new development at maximum allowable densities.

The use of public water and sewer service has supported the recent emphasis on cluster development, which helps to preserve sensitive natural resources and encourage watershed protection, especially at the transition between suburban corridors and rural wedges.

Another function of the Plan is to effectively sustain rural communities that have been dependent on wells and septic systems. The Town of Laytonsville brought its concerns to the County regarding groundwater contamination, septic system replacement, and fire protection. Through the Plan, the County promoted an examination and ultimately the provision of public water service for the community, which the Plan projects will occur within the next two to three years. This effort, which the County encouraged through a public-private financing partnership, will provide a reliable water source for the protection of residents.

Planning for the Future

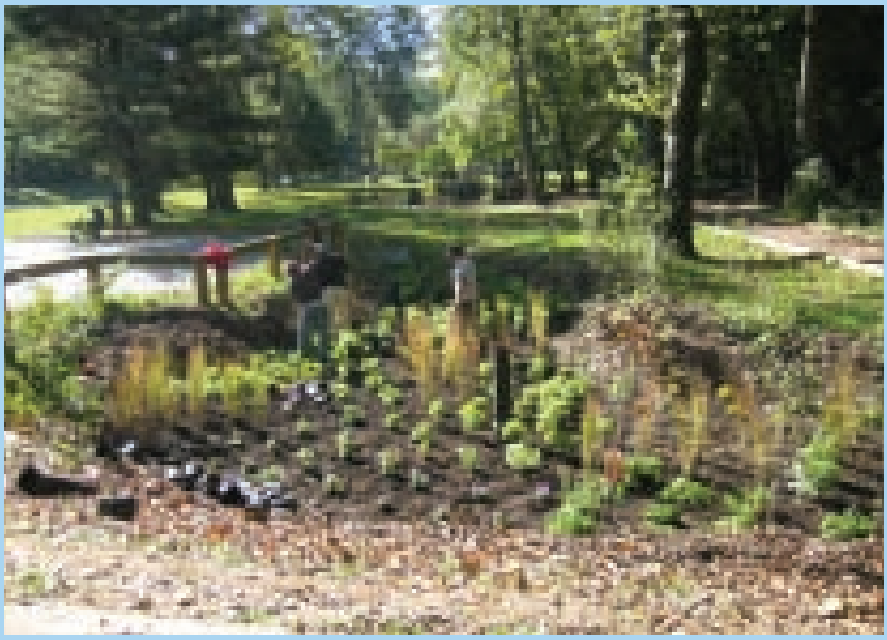
In addition to Laytonsville, many other communities which dot the county's rural landscape face similar concerns about their ability to continue on private water and sewer systems that are 30 to 50 years old. In future policy initiatives, the County's planning efforts will gradually turn from the growth of new communities to the revitalization and redevelopment of existing neighborhoods. Accordingly, the Water and Sewer Plan will also focus attention on older rural neighborhoods that may find it difficult to continue to thrive in the 21st century because of limitations on their ability to replace outdated private sanitary systems. In some cases, public systems, which have spread with new development, may be close enough to provide for relief of health problem areas. The Plan will need to promote affordable methods to extend existing public systems to these communities; this may also help older neighborhoods within the public service envelopes that developed before public service was available and are also dependent on private systems. Other neighborhoods with problems will be beyond the reasonably affordable reach of public systems. To protect public health and environmental quality, the Plan will need to develop more innovative solutions which may not depend on traditional public water and sewerage systems.

If left uncontrolled and untreated, the

wastewater our communities produce has the potential for negative effects on natural ecosystems and our neighborhoods. A substantial effort on the parts of the State, County, municipalities and public utilities goes into ensuring the adequate and safe transmission and treatment of sewage. Aging sewerage systems present a challenge to these efforts. The Plan will promote programs to systematically evaluate, maintain, and rehabilitate aging sewer infrastructure. These efforts will help to minimize sewage leaks and overflows which present a serious health hazard to the environment and people. These programs will also work to optimize the capacity of existing sewerage systems, and reduce the need for new sewerage facilities such as transmission mains, pumping stations, and treatment plants. These efforts will help to keep utility costs reasonable for consumers, and to minimize the effects of new facilities construction on ecosystems and neighborhoods. In this regard, however, the Plan will also have to find a satisfactory balance between the impact of needed sanitary facilities and the protection of parkland and other natural spaces, where utilities often need to construct transmission mains and other infrastructure.

Critical to the sustainability of both human and natural environments is an adequate water supply. As Montgomery County and the Washington region continue to grow, there will be additional stress on local and regional water resources. The Plan supports the County's regional water supply coordination with other jurisdictions, especially in the area of drought management. DEP, through the Water and Sewer Plan, will promote the reasonable and effective use of our single most important water resource: the Potomac River. Human and natural communities rely on the river's flows for adequate drinking water and for sustaining a natural environment. These two critical functions can be in competition with each other during periods of drought. Seeking solutions, policies, and agreements to affect a balance of needs presents both a challenge and an opportunity for the water and wastewater policy program.

LOW IMPACT DEVELOPMENT



Newly planted bioretention cell, Sligo Creek, 2005.

Integrating Low Impact Development (LID) techniques in the urban landscape is a beneficial tool for capturing and filtering runoff in developed or urbanized areas where conventional stormwater management practices are impractical. DEP is applying LID techniques not only for stormwater treatment, but to further educate citizens and neighborhood groups about how they can incorporate these innovative ideas into their own landscaping plans for homes and common areas. Bioretention is one of the LID techniques DEP is applying bioretention creates and utilizes shallow depressions in the landscape to collect runoff from paved or impervious surfaces. Water is filtered through a thin mulch layer, and travels downward through a porous soil medium, where the root systems of native vegetation and soil microorganisms absorb excess water and pollutants.

The bioretention cells established at the Sligo Creek Recreation Center demonstrate the integration of LID methods into an existing site, and demonstrate the ability to capture and treat runoff from rooftops and other surfaces within a confined location. Runoff from adjacent parking lots and Sligo Creek Parkway are captured by one of the three cells designed for maximum efficiency at the site. In addition to filtering runoff, reducing stormwater volume, and recharging groundwater levels, the native plants selected provide year-round color through successive blooming periods, foliar displays, and fruiting, which add a vital aesthetic element to the park and expand natural wildlife habitat.

Stream Protection

Streams and aquatic resources are important natural features that contribute to the quality of life enjoyed in our communities. Sustaining high quality stream environments provides conditions necessary to support the rich diversity of life found in our stream environments, maintains water quality supporting public drinking water sources, reduces bacteria levels and nutrient loads to "natural" levels, and, if sensitive organisms can survive within these stream systems, maintains county streams in healthy conditions

DEP monitors the conditions in about 1,500 stream miles using information on both the biological community and habitat - an approach followed throughout Maryland and surrounding states. This information is presented in the Countywide Stream Protection Strategy (CSPS) through a watershed-based approach that provides an assessment of the current stream conditions in all county watersheds. The CSPS provides recommendations to protect and preserve current high quality stream resources, to restore degraded urban streams to the greatest extent possible, and also details watershed priorities for targeting resource protection and preservation.

The Maryland-National Capital Park and Planning Commission (M-NCPPC) uses findings from the CSPS in its decision-making process to develop land use master plans. The Maryland Department of the Environment has used CSPS data in support of the Biocriteria program, and the Maryland Department of Natural Resources has used CSPS data for the Maryland Water Quality Inventory 305(b) Report. The Maryland Biological Stream Survey uses County data to provide additional information on conditions in state watershed assessments, and the County's own Special Protection Area program uses stream monitoring data to assess the impacts of land-use change. Finally, through the county's nationally-recognized watershed restoration program, DEP gauges the success of individual restoration projects by analyzing CSPS stream monitoring data.

> Over 3,000 stormwater facilities, including wet ponds, dry ponds, sand filters, infiltration trenches, stormwater filters, and underground storage structures, protect our streams and groundwater resources.

Achievements

DEP's work in the Sligo Creek watershed represents the most extensive watershed restoration work done thus far. Since 1990, over a dozen projects were built to add new runoff controls to 1,359 acres of upper watershed drainage and restore habitat features in five miles of stream. The restoration of the Sligo Creek watershed posed special challenges, as many of the important headwater tributaries have been piped (buried underground) and/or eliminated. When restoration began, only three fish species remained in the Montgomery County portion of Sligo Creek. Restoration progressed through at least four separate phases of runoff control, stream bank stabilization, and stream and wetlands habitat improvements. A team of biologists worked to reintroduce native species that once lived in the watershed. Today, 11 native species are known to be present in Sligo Creek. During 2004, DEP, the Friends of Sligo Creek, and the M-NCPPC continued to reintroduce formerly native species. The species re-introduction plan included more sensitive species with the goal of raising the stream condition of the upper portions of Sligo Creek from "poor" to "fair" by the next CSPS update. This work will continue in 2006 with another reintroduction of native species.

Following watershed priorities identified in the CSPS, DEP has been implementing capital projects for stream restoration. These projects are located in older, urbanized areas which developed before runoff controls were required and where damages to natural stream systems have been the greatest. Projects that have come through design to completion have restored 23.1 miles of streams, and provided for SWM controls of 3,773 acres of previously uncontrolled urban areas. Pocket wetlands have been added in many urban watersheds to provide habitat for once extirpated amphibian species. Watershed studies covering more than 152 square miles have now been completed in Upper Paint Branch, Northwest Branch, Rock Creek, Cabin John Creek, Hawlings River, Lower Paint Branch, and Watts Branch. The stormwater retrofit program projects are designed to reduce peak runoff flows and pollutant loadings to downstream resources. Stream restoration projects attempt to adjust the stream channel habitat to accept changes in watershed hydrology that accompany watershed development, while retaining natural habitat features necessary for the ecological sustainability of the urban stream.

Beginning in 2002, a Water Quality Protection Charge was implemented through County tax bills to provide funding for a comprehensive Stormwater Facility Maintenance Program. The program itself will ensure the ongoing inspection and maintenance of stormwater management facilities within Montgomery County.

These stormwater facilities, now numbering over 3,000, include a variety of wet ponds, dry ponds, sand filters, infiltration trenches, stormwater filters, and underground storage structures. Collectively, these facilities play a

vital role in the protection of our streams and groundwater resources. Inspection and maintenance of stormwater infrastructure is essential to keep these valuable components functioning properly in removing pollutants, slowing erosive stormwater flows that damage stream habitat, recharging groundwater, and protecting properties from flooding. Assessing the long-term maintenance of stormwater management (SWM) controls is an essential component of the County's program to protect the sustainability of county aquatic resources.

Priorities

1. Urbanization has profound impacts on the hydrology and ecology of streams via alteration in water temperatures, peak and base flows, and nutrient, sediment, and contaminant inputs. Stormwater management is commonly used to reduce these impacts; however, comprehensive watershed-scale studies to determine the effectiveness of SWM designs in reducing ecological impacts are scarce. With the continuing trend of urbanization, there is an urgent need to more fully understand which SWM designs are most effective and why, so that policymakers are better equipped to address the sustainability of water resources. DEP is currently working with colleagues from the University of Maryland, the USGS, U.S. EPA, M-NCPPC, as well as private consultants, to study the ecological sustainability of stream environments in rapidly urbanizing watersheds. This work is being partially funded through a grant from EPA's Collaborative Science and Technology Network for Sustainability (CNS). The CNS program suggests research which addresses the long-term sustainability of natural resources in terms of quality, availability, and viability.

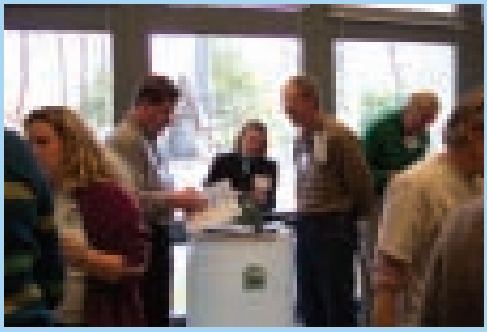
2. Current zoning specifications, subdivision regulations, building code, and road code requirements often unintentionally and unnecessarily impede implementation of land development practices more sensitive to sustainable water resources and water quality. An updated interagency review of these

SLIGO CREEK RESTORATION AND FISH REINTRODUCTION

Since 1990, the most extensive and long term stream restoration effort undertaken so far in Montgomery County has focused on Sligo Creek. Before restoration, the Sligo Creek watershed posed special challenges with many of the important headwater tributaries piped and/or eliminated, and much of the stream channel in a highly eroded, debris-filled condition. Only two native fish species were commonly found throughout the watershed. The completion of more than a dozen projects have added new stormwater runoff controls to 1,359 acres of upper watershed drainage, and restored habitat features within five miles of the stream. This represents a collective investment of approximately three million dollars. Habitat restoration work included stream bank stabilization, stream-side tree plantings, and the addition of several vernal pools and wetlands. These habitat improvements enabled the rebuilding of the native biological community through the planned reintroduction of fish and amphibian species long absent from Sligo Creek. Other important interagency partners in this effort included the Maryland National Capital Park and Planning Commission, the U.S. Army Corps of Engineers, and the Metropolitan Washington Council of Governments.

This unique interagency partnership has worked many long hours to reintroduce native species which once lived throughout the watershed. Today, 11 native fish species are known to be present in Sligo Creek. The diversity of the supported aquatic insect communities also improved. In 2004, the next step was taken to continue reintroducing formerly native fish species, including more sensitive species, with the goal of raising the stream condition of the upper portions of Sligo Creek from "poor" to "fair" by the next CSPS update. The 2004 fish reintroductions were made in close cooperation with the Friends of Sligo Creek, a volunteer group dedicated to improving conditions in the watershed. Children from the Sligo neighborhood held a "Welcome Home Fish" poster as the buckets of fish were carefully reintroduced to Sligo Creek. Plans are now being made to continue this initiative, and reintroduce additional fish during the late spring of 2006.

THE RAINSCAPES PROGRAM



A "Make-and-Take" rain barrel workshop.

Rainscapes are landscapes and small-scale stormwater management techniques designed to reduce the volume of runoff from impervious surfaces, while also preventing a large variety of pollutants from entering local waterways.

Unlike larger public projects which rely on extensive and expensive construction to provide stormwater controls through bioretention structures, Rainscapes initiatives invite direct involvement — and partnerships — with residents, small businesses, schools, and community associations, while providing them with a broad range of easily-implemented solutions to water quality issues.

At the heart of the program is an integrated platform of popular public "Make-and-Take" rain barrel workshops, print and electronic media, grassroots demonstration projects, and community-based, hands-on activities. The result is beautiful, thriving rain gardens and habitat areas which recreate or mimic natural ecosystems.

Through the Rainscapes Program, people taking action make a difference in water quality and environmental health. The success of the program owes much to its inherent simplicity: redirecting downspout runoff, changing lawn care practices, gardening with native plants, or creating a dynamic rain garden all help soil capture and filter rain water, while also recharging vital groundwater supplies.

Rainscapes delivers its message through a multimedia approach, including a dedicated website (rainscapes.org), electronic newsletter, featured episodes on the GreenMan cable television program, colorful information kits and publications, and in-person presentations. Upcoming events and workshops generates tremendous excitement among the public: most venues are filled to capacity.

One of the most important goals of the Rainscapes Program has been to serve as a catalyst for future action within a variety of communities. As DEP has neither the funding nor staff to stage countywide projects, citizen's groups interested in workshops or planting projects would be responsible for promoting the events, and organizing volunteers to manage the project itself. Thanks to initial guidance and support from the Rainscapes Program, those participating groups would thereafter be capable of organizing future rain barrel workshops, or planning and planting additional rain gardens in their watershed. To date, our successful and ongoing relationship with the Friends of Sligo Creek, and the school system's Environmental Education Center, among others, have inspired a host of exciting new projects, ensuring that the program's objectives continue to flourish throughout the county.

requirements is needed to seek compromise solutions which continue to address critical agency operating requirements, such as fire equipment access, while resulting in more environmentally-sensitive development designs which reduce impervious area and peak runoff impacts; promote stormwater reuse; and enhance replenishment of groundwater for sustaining well yields and stream base flows. DEP hopes to work more closely with the M-NCPPC, the Department of Permitting Services (DPS), and the Department of Public Works and Transportation to conduct a joint interagency assessment of current zoning, subdivision, building, and road code standards that unnecessarily impede efforts to mitigate the environmental effects of land development. Montgomery County seeks to assemble a Task Force to initiate this effort by September 2006, and to develop related recommendations by December 2007. DEP will also work with DPS and the M-NCPPC to develop proposed changes to Chapter 19 of the County Code, and associated regulations to implement a grading ordinance provision to improve management of lot-to-lot drainage and avoid related nuisance flooding and erosion problems.

3. New initiatives are needed to reduce impacts on county streams from sediments, abrasives, metals, and nutrients generated from highly trafficked urban and suburban areas. Some of these initiatives also have important cross-media environmental benefits in groundwater replenishment, temperature mitigation, and capture of air pollutants.

The County needs to target and reduce general runoff pollution loadings from runoff draining intensively developed urban/suburban areas while also providing, in some cases, other important cross-media environmental benefits. This can be achieved by:

a. Initiating an FY08 budget initiative to increase the range and frequency of coverage of street sweeping/vacuuming to help reduce concentrated sources of runoff pollution impacting county streams, and to target highly trafficked areas with high pollutant generation and solids removal potential, and areas upstream of watershed restoration implementation projects.

b. Implementing a pilot project that installs runoff filtration devices at stormdrain inlets to remove pollution from high traffic streets; initially target areas in the Bethesda, Silver Spring, and Wheaton Central Business Districts to test and evaluate the effectiveness of alternative technologies available for this purpose.

c. Securing grant funds and implementing new Low Impact Develop (LID) projects at more County facilities with high public visitation; use these pilot installations to demonstrate the capabilities of rain gardens and other bioretention technologies to reduce runoff impacts and infiltrate rainwater to help replenish groundwater.

Enforcement

DEP's environmental compliance unit conducts enforcement actions in the areas of: solid waste, illegal dumping, water, air, noise, hazardous materials, and environmental monitoring. Annually, we respond to approximately 1,700 environmental related complaints.

The majority of our complaint investigations involve pollution abatement; we also provide compliance assistance and pollution prevention advice. Our pollution prevention efforts include stormwater outfall monitoring, the issuance of burning permits, review and approval of compliance plans, and public education through direct mailings and our website. DEP also monitors one hundred outfalls annually for dry weather flows, which can indicate possible illicit stormdrain connections, while also monitoring the quality of groundwater, surface water, and soil gas at several of the County's solid waste facilities. Finally, in a bold proactive move away from basic monitoring, enforcement, and complaint resolution response efforts, the department launched an award-winning and effective Environmental Partners Program.

Achievements

1. The Environmental Partners Program began as a dynamic cooperative pollution prevention program between DEP and the private sector vehicle maintenance and repair industry. This comprehensive inspection program has as its goal educating businesses about pollution prevention, and reducing costs using environmentally-friendly products and methods. While the emphasis is on voluntary compliance, there is an enforcement component. In order to qualify as an Environmental Partner, the business must be in compliance with all Federal, State, and local laws, and must have all applicable permits. Each business must agree to adopt (if they have not already done so) at least one environmental alternative in air quality, water quality, product substitution, and solid waste disposal. Affected outfalls are monitored, and reductions in air emissions, water discharges, and hazardous waste generated are tracked as well.

2. DEP executed a search warrant at a large commercial property in Germantown, citing various solid waste and water quality violations. Almost 200 citations were issued and the responsible party received more than $50,000 in fines. In addition, DEP was granted several Court Orders For Abatement against the property owner. The enforcement of the Court

ROCK CREEK FISH KILL

On May 18, 2000, a major fish kill occurred in lower Rock Creek, south of the Capital Beltway. The initial investigation was conducted by a DEP staff member and an investigator from Maryland Department of the Environment's (MDE) fish kill response unit. The investigators bracketed areas of the creek where dead and dying fish were observed, and quickly located a suspicious discharge from a stormdrain outlet serving an industrial area between the Beltway and East-West Highway. The extent of the fish kill was observed downstream to Military Road, well within the District of Columbia. A strong, pervasive "organic chemical" smell was evident at the outfall, and an insecticide spill was suspected. The number of dead fish was estimated at 54,000. Nearly 13 hours of time was spent on the initial investigation to pinpoint the source of the contamination and to evaluate the magnitude and extensiveness of the fish kill

Water samples collected from the stream confirmed that the suspect discharge as Cypermethrin, a pesticide for termites highly toxic to fish and other aquatic life. The discharge source was identified within a few days and a search warrant was served to the property owner. The investigation concluded that an employee of a pest control company in the area spilled the Cypermethrin in the parking lot and hosed the chemical into a nearby stormdrain. Criminal charges were filed against the owner of the company and the employee, resulting in probation for the owner, restitution, and fines.

Subsequent biological monitoring of Rock Creek was performed to assess whether there were any residual detrimental effects that could be attributed to the fish kill incident. Fortunately, the lower Rock Creek fish and benthic community recovered rather quickly and by October, the fish community had recovered to what it had been prior to the spill. However, the fish and benthic macroinvertebrate communities of lower rock Creek are comprised, for the most part, of pollution tolerant taxa. Had the spill occurred in a more pristine area, recovery would not be expected to occur as rapidly.

In addition to DEP's efforts, investigating agencies included the U.S. EPA, MDE, U.S. Fish & Wildlife Service, Maryland National Capitol Park & Planning Commission, National Park Service, United States Park Police, D.C. Environmental Crimes unit, and the D.C. Department of Health. Overall, DEP logged nearly 420 hours of staff time for the initial investigation and post incident biological monitoring.

ENVIRONMENTAL PARTNERS PROGRAM

A sustainable community can only be realized through the collective efforts of large industry, small businesses, government agencies, and residents, especially when those efforts are geared toward education and behavior modification. DEP established the Environmental Partners Program, realizing that most small businesses wanted to comply with environmental regulations and were concerned about the environment, but were overwhelmed by time-consuming requirements conflicting with opportunities to learn about new pollution control strategies and product substitutions. The Environmental Partners Program is therefore a cooperative pollution prevention program between the County and business leaders, particularly those in the vehicle maintenance and repair industry. The goal of the program is to save money, time, labor, and resources, while helping to protect and enhance the quality of the environment. DEP conducted extensive research and in-house training to present businesses with a ready-made package of compliance requirements and current, cost-effective pollution prevention measures, resulting in a convenient workbook. Simple training measures, improved housekeeping policies, and proper reuse and recycling options for a variety of common shop materials are all presented. Suggestions are offered to reduce the inventory of hazardous materials, and cut material storage and disposal costs, and address the requisite liability and regulatory concerns connected with those materials. These materials are presented one-on-one at the business site. The program has seen much success in product substitution. One automotive chain pledged to remove solvent machines from all of its 110 stores across the mid-Atlantic, resulting in a reduction of more than 36 tons of volatile organic compounds (an ozone precursor) each year. In addition, numerous countywide shops were shown a microbial parts washer, which generates no air emissions, instead relying on microorganisms to digest oil from the automotive parts, leaving very little waste. A significant number of shops subsequently expressed an interest in this new technology, which is currently being used by the County's own vehicle repair shop. DEP plans to continue its efforts in the Environmental Partners Program by expanding this work into other industries.

Orders resulted in the cleanup of the property, which included removal of a large volume of solid waste, removal of seven underground fuel storage tanks totaling 71,000 gallons of fuel storage capacity, and abatement of numerous other water quality violations.

3. DEP worked with the Maryland Department of the Environment (MDE) to close an illegal landfill site in the Burtonsville area. This old sand and gravel pit had been used as an unpermitted landfill. The State's Attorney's Office entered into a Consent Order, requiring the landfill be closed and capped in compliance with State regulations. In addition, a $50,000 fine was imposed on the property owner. The site is being reclaimed as part of a golf course.

Priorities

We continue to promote and expand the Environmental Partners Program. DEP will continue to visit automotive repair shops recertifying our current Environmental Partners and performing pollution prevention surveys at new locations. We plan to expand the program to include auto body repair shops and dry cleaning operations throughout the county.

> This we know — the Earth does not belong to man — man belongs to the Earth. This we know. All things are connected like the blood which unites one family. All things are connected. Whatever befalls the Earth — befalls the sons of the Earth. Man did not weave the web of life — he is merely a strand in it. Whatever he does to the web, he does to himself.
>
> — Chief Seattle 1851

Interagency Partnerships

Montgomery and Prince George's County have been partnering in several EPA grants to design, build, and evaluate several Low Impact Development (LID) projects, and enhance pollution prevention through targeted public outreach activities. LID projects completed to date include several bioretention cells in the Sligo Creek watershed.

The Maryland-National Capital Park and Planning Commission (M-NCPPC), the Maryland Biological Stream Survey, and Montgomery County have had an informal partnership for many years, allowing collaboration and sharing in monitoring all county watersheds. This effort avoids duplication of effort, and allows for a more efficient, comprehensive collection of data that any single agency could hope to collect.

The Clarksburg Integrative Monitoring partnership is with the U.S. Geological Survey, EPA, the University of Maryland (College Park), and M-NCPPC. This partnership enables collection of better, more comprehensive data on hydrology, morphology, biology, and nutrient and sediment exchanges then could be collected alone by any one member agency.

Montgomery County is a founding member of the Patuxent Reservoirs Watershed Protection Group, established in 1996 to protect the reservoirs and their watershed resources, as a cooperative effort among Howard, Prince Georges, and Montgomery Counties, with M-NCPPC, WSSC, and the Howard and Montgomery Soil Conservation Districts, as signatories. Over the past ten years, the Group has agreed on goals, implementation items, and timelines for protection of priority resources. The Group develops an Annual Action Plan and Report to elected officials which tracks progress on achieving the Group's goals.

Three generations plant a tree to protect their drinking water supply, Earth Month, 2001.

Girl scouts help remove trash in the Patuxent Watershed, Earth Month, 2001.

The Rainscapes Program began initially as a collaborative partnership between DEP and the Potomac Conservancy to promote a grassroots approach to improving water quality. Additional partnerships were later forged with a broad range of organizations, including: Montgomery County Public Schools, MCPS' Lathrop Smith Environmental Education Center, and the Outdoor Education Association; citizen activists such as Friends of Sligo Creek, Neighbors of Northwest Branch; conservation groups such as the Wildlife Achievement Chapter of the Izaak Walton League and Audubon Naturalist Society; municipalities such as the Town of Kensington and Chevy Chase Village; and business partners, such as Fletcher's Service Station.

As a founding member of the Anacostia Watershed Restoration Committee, Montgomery County partners with other jurisdictions, agencies, and independent groups in the regional Anacostia Watershed Restoration effort. Montgomery County's contributions to this initiative include completion of 16 projects to restore 11 miles of damaged stream habitat, and 17 stormwater retrofit and low impact development projects, to add stormwater runoff controls to 2,300 acres of previously developed land. New projects are under design to restore habitat in another six miles of damaged streams, and retrofit stormwater controls to 660 more acres of existing development. Other Anacostia partners include the District of Columbia, Prince Georges County, the Maryland Departments of the Environment and Natural Resources, the U.S. EPA, and the Army Corps of Engineers. Many independent volunteer watershed organizations in the County, including the Friends of Sligo Creek, Neighbors of Northwest Branch, and Eyes of Paint Branch, provide invaluable support to help achieve watershed's restoration goals.

Appendix

Awards and Honors

2005

National Association of Counties (NACo) Achievement Award:
- Air Quality Protection Strategy
- Rainscapes Program
- Regional Wind Energy Purchase

Green Power Partnership
Green Power Partner of the Year Award for Landmark Clean Electricity Purchase

2004

U.S. Environmental Protection Agency
Largest Local Government Purchase of Wind Power in the U.S.

Citizens for Pennsylvania's Future (PennFuture) Greenest County in Maryland Award

Washington Metropolitan Council of Governments
Clean Air Partnership Award

25th Annual Telly Awards
Finalist 2004:
- GreenMan Show, "Opening Sequence & Graphics"

The Pegasus Awards
Award of Excellence:
- GreenMan Show, "Energy Vampires"

The Izaak Walton League of America, Inc. (National) 2004 Honor Roll Award

Clean Air Partners
Trendsetter Award

2003

The Izaak Walton League of America, Inc. — Maryland Division
2003 Honor Roll Award

National Association of Counties Achievement Award:
- Environmental Partners Program
- Healthy Indoor Air Campaign
- Enabling Water Quality Protection Charge Program

Clean Air Partners
Local Government Program of the Year

24th Annual Telly Awards
- GreenMan Show, "Environmental and Outdoor Education"

U.S. Environmental Protection Agency
Clean Water Partner for the 21st Century Award

2002

National Association of Counties Achievement Award:
- Solar Roofs Program
- Radon Survey Program
- Groundwater Protection Strategy

2001

Audubon Naturalist Society
Education Award

National Association of Counties Achievement Award:
- Environmental Assessment 2000
- West Nile Virus Outreach Campaign
- Consumer Education on Electricity Deregulation
- Countywide Forest Preservation Strategy

2000

National Association of Counties Achievement Award:
- Environmental Lawn Care Campaign
- Clean Water Partners Campaign

1999

National Association of Counties Achievement Award:
- Countywide Stream Protection Strategy
- Healthy Indoor Painting Practices Campaign
- Oil and Water Don't Mix Campaign
- Stormwater Discharge Control Program

1998

Chesapeake Bay Program
Chesapeake Bay Partner Community, Gold Bay Partner Award

National Association of Counties Achievement Award:
- Compost Bin Distribution Program

1997

National Association of Counties Achievement Award:
- Ozone Action Days Program
- VermiLab Program

1996

National Recycling Council
Outstanding Community Program Award

Women in Communications
Clarion Award: Category of Community Service Campaign:
- Improve Your Pour Performance

American Advertising Federation ADDY Awards:
- Logo/Trademark Design
- Public service/Television
- Newspaper, 4-color or More
- Print Material/Poster, 4-color or More
- Print Material/Poster, campaign
- Advertising Arts/Campaign - Composting
- Advertising Arts/Campaign - Grasscycling
- Advertising Arts/Illustration - Composting
- Advertising Arts/Illustration - Grasscycling

Association of Municipal Recycling Coordinators
National Promotion and Education Award

Natural Resources Defense Council
Award of Excellence:
- Oversized Graphics/Interior
- Oversized Graphics/Exterior
- Corporate Identity/Logo

Award of Excellence - Silver:
- Newspaper Advertising
- Posters/Educational

Award of Excellence - Special Mention:
- Television/Local Advertising
- Public Service/Non-Profit - Television Advertising
- Public Service/Non-Profit/Television

17th Annual Telly Awards
"Anyone Can Compost" Television Advertising

HEALTHY INDOOR PAINTING PRACTICES CAMPAIGN

DEP launched an aggressive, yet inexpensive, outreach and education campaign during the summer of 1998 to raise public awareness about serious health consequences of indoor painting and floor refinishing without proper ventilation, especially while utilizing products containing potentially harmful volatile organic compounds. Of particular concern were the residents of multifamily homes, who were potentially impacted by work performed in adjacent units or public areas. The campaign consisted of colorful posters for public areas, display ads, editorial factsheets for easy insertion into homeowner association and property management newsletters and bulletins, television and newspaper interviews, radio and cable Public Service Announcements, brochures, a website, and official mailings; its target audience was directed at residents (particularly pregnant women and individuals with compromised respiratory systems), property managers, common ownership communities, painting and building contractors, and public health providers.

The campaign was an immediate and dramatic success, due primarily to media interest in the materials presented. For example, a small article in the *Washington Post Health Section* generated 227 phone calls in one week alone. That piece was later disseminated through the *Post's* website, and found a receptive national audience via segments on *ABC News 20/20* and the ABC News website. In turn, the campaign attracted the notice of the *Journal of Environmental Health, American Health Magazine, Bottom Line Health, ICMA: Ideas in Action Guide,* and *Public Works.* Closer to home, the campaign was a cover story in the *Montgomery Weekly, MDE Environment, the Gazette Newspapers, the Sentinel, County Comments* on County Cable 55, and a radio interview on *Metro Talk* for *WBIG* and *WTEM.*

In less than two months, more than 12,000 brochures and poster sets had been distributed, and more than 20 jurisdictions and agencies across the country had expressed a strong interest in adapting the campaign and related materials for use with their residents.

Within the next year, the U.S. EPA and the Consumer Product Safety Commission (CPSC) expressed a strong interest in adapting our materials for a national campaign. DEP's publications and artwork were soon lightly edited, translated into Spanish, and together released nationwide as a joint production of Montgomery County DEP, EPA, and CPSC.

Perhaps the most impressive aspect of the program was that a newly-restructured DEP identified a potentially serious environmental health risk, immediately set aside resources to address the situation, developed a cost-effective and influential campaign, and effectively implemented the program to the benefit of thousands of at-risk residents. The ultimate value of the program is its direct applicability to jurisdictions across the nation. The indoor air quality issues relating to unhealthy volatile organic compounds are shared by every city and county in the U.S., and beyond. DEP's grassroots action helped pave the way for a national response to this problem.

Americans long thought that nature could take care of itself — or that if it did not, the consequences were someone else's problem. As we know now, that assumption was wrong; none of us is a stranger to environmental problems.

— Jimmy Carter, 39th President, 1977

Publications

The following represent a sampling of publications issued by the Department of Environmental Protection, many of which are cited within this report. All are available online as downloadable PDF files from the DEP website: **www.montgomerycountymd.gov/dep.**

2003 Air Quality Protection Strategy:
Establishes eight priorities for improving the county's air quality and recommends specific actions that can be taken on the local level. This management tool is receiving national recognition as a model for communities.

Air Quality Primer:
A series of factsheets providing background information on ambient air quality concerns, including acid rain, air toxics, ground-level ozone, particulate matter, and much more; includes initial strategies for dealing with these topics.

Best Management Practice Monitoring Protocols:
Developed by DEP's Special Area Protection Program in order to promote consistency and comparability among BMP monitoring projects.

Commercial Stormwater Facility Maintenance:
A guide to oil/grit separators, underground storage structures, and other facilities.

Countywide Stream Protection Strategy 2003 Update (also: 1998 Edition):
In 2001, DEP began its second five year biological monitoring cycle to assess water quality conditions in all county watersheds. Previous monitoring sites are revisited to measure and compare water quality conditions and changes over time.

CSPS Update: Significant Progress in Sligo Creek Restoration:
Update focuses on the most extensive and long term stream restoration effort undertaken so far in Montgomery County: Sligo Creek a watershed which poses special challenges.

Energy Policy Review (also: Energy Policy - Amended 2003):
The County Executive is required to report to the County Council each year about the continuing appropriateness of the Energy Policy adopted in 1995. The code also calls for development of an annual energy work program, and establishment of long-range goals to accomplish the policy objectives.

Environmental Assessment 2000:
Identifies resource concerns throughout the county grouped into key areas, including air quality, biodiversity, energy management, agriculture, and watershed quality. Within each area, individual measures or "indicators" have been identified by working with citizen advisory committees.

Forest Preservation Strategy - 2000 (also: 2004 Update)
Forest Preservation Task Force, October 2000: a strategy that works to improve stewardship of the forest and tree resources across the county. The strategy's goals are to increase the quantity of forest canopy, improve the quality of forests and trees, and protect and restore forest ecosystems throughout the county.

GreenMan Factsheets:
More than 70 popular factsheets which address Earth-friendly gardening and landscaping ideas, from invasive plant control to native plant alternatives, landscaping for wildlife habitat, to environmental lawn care, composting, edible and fragrant landscapes, and much more.

Groundwater Protection Strategy:
Developed to protect public health, and the integrity of surface water and groundwater.

Hawlings River Watershed Restoration Study:
Begun in May, 2000 to evaluate opportunities for stream restoration and stormwater retrofits.

NPDES Annual Report - 2003, 2002, 2001:
Contains background and specific information about the County's Permit to control stormwater runoff into streams and other waterways. The goal of this federal Clean Water Act program is to restore and maintain the chemical, physical, and biological integrity of the nation's water.

Oil & Water Don't Mix: Take Care with Auto Repair:
Easy techniques for preventing water pollution from leaks and spills of oil and other automotive fluids, especially while making simple auto repairs at home.

Open Burning: A Regulatory Factsheet:
Addresses procedures for open burning that will minimize air pollution that can directly affect the health and well being of people who live or work near open burning sites.

Ozone/Smog: Do Your Share for Cleaner Air:
Addresses how we may all help minimize impacts from atmospheric pollutants that are harmful to our health and the environment year-round.

Resource Conservation Plans for Fiscal Year 2007:
Supports the Energy Management Capital Projects and Utility Operating Budgets, and is prepared by member agencies of the Interagency Committee on Energy and Utilities Management.

Rock Creek Watershed Restoration Action Plan:
A summary of the more technical and lengthy Rock Creek Watershed Feasibility Study that was completed in the summer of 2001.

Solar Hot Water:
Information about solar thermal systems, which use solar collectors to absorb the sun's light and change it into heat energy.

Solar Power:
Information regarding solar energy, a clean renewable source of light, heat, and electricity.

2004 Special Protection Area Annual Report (also 2003, 2002, 2001):
Details of stream conditions and development projects located within the SPAs.

Street Sweeping for Pollutant Removal:
Documents the current status of street sweeping in Montgomery County; evaluates pollutant removal from street sweeping based on a literature review; and makes recommendations for the County's street sweeping program to maximize pollutant removal at the lowest possible cost.

Vehicle Maintenance and Repair Manual:
A component of DEP's Environmental Partners Campaign: and provides suggestions designed to reduce inventory of hazardous materials, material storage and disposal costs, as well as the requisite liability and regulatory concerns connected with those materials.

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Published in April 2006

DEP Mission Statement:
To protect and enhance the quality of life in our community through conservation, preservation and restoration of our environment guided by principles of science, resource management, sustainability and stewardship.